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ANNEXURE-I TO PI 830691048

1) ITEM NO 01:

1.	DOOR SEAL	
	Profile cross section	
1.1	Base length	16.6mm
1.2	Base height	6.2mm
1.3	V groove on base	4.2mm
1.4	Angle of groove	60 degree
2	Vertical stream	
2.1	Height side A	14.2mm
2.2	Height side B	9.1mm
2.3	Angle side A	88° Angle
2.4	Angle side B	90° Angle
3	Half Crescent Lippe	
3.1	Width	27.4mm
3.2	Total Height	42.8mm
3.3	length of viton seal	26.79 end less
3.4	Vacuum	0.002 mbar
3.5	Temperature with standing capacity	316° C
3.6	Elongation	220%
3.7	Tensile strength mpa	1950
3.8	Surface finish	Plate finish
3.9	Explosion proof	The seal should be explosion proof
3.10	Length of Viton seal	26.79 mm end less

4) Chemical Resistance: Resistance to oils, fuels, Vacuum and mineral oils lubricants solvent and should have good resistance to aliphatic hydrocarbon fluids, Acids, high temperature Compression set: good resistance even at temperature of 316°C that can stiffen other non-fluorinated customers.

5) Environmental: Good resistance to atmospheric oxidation, sun, weather, and excellent resistance to fungus and mold.

Rough
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6) Quantity=02 Nos.

7) Specification:

SR NO	PHYSICAL CHARACTERISTICS	Specified requirements	Test Method
1	Hardness, Shore 'A'	79 $\pm$ 5	BS 903, Part-A26, Method-N
2	Density (gm/cc) :	1.8 $\pm$ 0.15	BS 903, Part-A1, Method-A
3	Tensile Strength. (Mpa)	8.0 (min)	BS 903, Part-A2, (dumb-bells)
4	Elongation at Break, (%)	200 (min)	BS 903, Part-A2, (dumb-bells)
5	Compression set at 280 deg C for 24 hrs, (%)	30 (max)	ASTM D395, Method-B on Type- 1 specimen
HEAT RESISTANCE IN AIR OVEN AT 230 deg C FOR 70 HRS. ASTM D 573			
a)	Change in Tensile Strength, %	$\pm$ 5 (Max.)	
b)	b) Change in Elongation at Break, % :)	$\pm$ 5 (Max.)	
c)	c) Change in Hardness, Shore 'A'	$\pm$ 5 Pts(Max)	

8) The Geometrical shape should match the Door Grooves and clamps.

9) The Viton seal must have all properties for use as a reliable vacuum tight seal. It Should be capable to use in vapour phase drying plant for Transformer manufacturing. Aggressive chemical resistance as well as a need for high vacuum and low chemical contamination. It can withstand temperature in the range of 18 to 480 F continuously.

10) APPLICATION:

Viton rubber has the following unique properties for use as a reliable vacuum tight seal. In Vapour phase drying plant of Transformer manufacturing industry which involves aggressive chemical agents as well as a need for high vacuum and low chemical contamination. In most vacuum applications the properties of interest are:

1. It can withstand temperature in the range of -20 to 200 C continuously.
2. It has excellent resistance to oils, fluids, minerals, acids, lubricants and solvents shall as SHELL SOL H Vapours.
3. It has excellent resistance properties to burning because of fluorine content.
4. It has good resistance to biological degradation.
5. It has resistance property to oxidation, sun and weather.
6. It has excellent compression set values at high temperature.
7. It has good abrasion resistance.
8. It has moderate electrical properties.
9. It has good resistance to ASTM Oil and silicone Oil and SHELL SOL H Vapours. Chemical resistance to:
 - i) Mineral oil and grease, low swelling in ASTM oils no. 1 through 3;
 - ii) Non-flammable hydraulic fuels in the group HFD;
 - iii) Silicone oil and grease;

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- iv) Mineral and vegetable oil and grease;
- v) Aliphatic hydrocarbons (fuel, butane, propane, natural gas);
- vi) Aromatic hydrocarbons (benzene, toluene);
- vii) chlorinated hydrocarbons (trichloroethylene and carbon tetrachloride);
- 11) The outgassing characteristics of Viton or the percentage weight loss after vacuum exposure Shall be 0.07%
- 12) "Low-cost" fluoroelastomers (FKM/FPM1) offered which are not manufactured out of 100% fluoroelastomer will not be acceptable. Elastomers based on EPDM, Neoprene or Acrylate rubber have been added to form "cheap" compounds, causing the technical properties to be inferior compared to 100% fluoroelastomers.
- 13) The Viton shall have fluorine content between 66-70 %

14) SHELF LIFE

Rubber materials have 24 months shelf life from the date of despatch if kept in proper storage system of 27 degC ambient temperature.

15) FINISH

The material shall be free from defects such as blisters, holes, bubbles, cracks, Inclusions, flow marks etc. and given smooth finish.

15) Dimension tolerance DIN 7715 E2/L2 as endless ring together

Tolerances for cut to length extrusions

Tolerance class L2

Tolerance in mm = $\pm 1, 00$

Tolerance for profiles and hoses (without reinforcement) acc. To ISO 3302

Tolerance class L2

Tolerances in mm = $\pm 1, 00$

Quantity=02 nos.

2) ITEM NO 2:

2.1) DOOR LIPPE SEAL

- 2.2) Base Length: 17.1mm
- 2.3) Base height: 12.2mm
- 2.4) U groove on base height: at essential
- 2.5) V groove width at surface: 2.9mm
- 2.6) V groove depth: 2.9mm
- 2.7) Surface width: 8.8mm
- 2.8) Nose dimensions
- 2.9) Height side A: 17.6mm
- 2.10) Angle side A: 57 degree
- 2.11) Height side B 14.6
- 2.12) Angle Side B: 74 degree
- 2.13) Vacuum: 0.002mbar
- 2.14) Temperature with standing capacity: 316 °C
- 2.15) Elongation: 220%
- 2.16) Length of Viton seal=26.52 mm end less

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3) Other features same as Clause 4 to 15 of ITEM NO 1.

4) Quantity=02 nos.

16) Supplier shall submit test certificates of the material regarding composition of viton and certificate of Authenticity from Manufacturer.

17) The material shall be inspected and tested at supplier's works.

18) The material shall be guaranteed for period of 12 months from date of supply.


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